AMENDMENTS

In the Claims

1.   (**Currently Amended**) A network device comprising:

~~a network interface, wherein~~

> ~~said network interface comprises~~

a processor [[and]] :

a first memory, [[and]] <u>wherein</u>

> said processor and said first memory are coupled to one another; [[and]]

a tunnel classification stage, wherein

> **said processor is coupled to control** said tunnel classification stage ~~is~~
>
> > ~~coupled to said network interface~~,
>
> said tunnel classification stage comprises
>
> > a packet processing section comprising at least one processor,
> >
> > a security group identifier identification unit, coupled to said
> >
> > > packet processing section, and
> >
> > a tunnel classification unit, coupled to said packet processing
> >
> > > section and said security group identifier identification unit,
>
> said security group identifier is configured to identify a security group of a
>
> > sender of said packet, and
>
> said packet processing section is configured to
>
> > classify a packet based on a security group identifier (SGI) of said
> >
> > > packet,
> >
> > forward said packet through a tunnel via which said packet is to be
> >
> > > forwarded, and
> >
> > determine said tunnel using said SGI.

2.-3.   (Cancelled)

4.   (Previously Presented) The network device of claim 1, wherein said packet processing section is further configured to forward said packet through said tunnel based on information in a header of said packet.

5.   (Cancelled)

6.   (Previously Presented) The network device of claim 1, wherein a single router comprises said tunnel classification stage.

7.   (Previously Presented) The network device of claim 6, wherein said tunnel classification unit comprises:

a lookup unit.

8.   (Previously Presented) The network device of claim 7, wherein said lookup unit comprises:

an access control list (ACL); and

a content-addressable memory, wherein

said content-addressable memory is configured to access said ACL by

virtue of being configured to

generate an index, and

provide said index to said ACL.

9.   (Previously Presented) The network device of claim 8, wherein said network device further comprises a memory,

said ACL is stored in said memory,

said content-addressable memory and said memory are coupled to one another,

said ACL comprises a plurality of ACL entries (ACEs), and

each of said ACEs comprises a tunnel identifier field and a security group identifier field.

10.   (Previously Presented) A method comprising:

assigning a security group identifier (SGI) to a packet, wherein

        said SGI is assigned based on a security group of a sender of said packet;

classifying said packet based on said SGI;

determining a routing of said packet, wherein said determining is based on said

        SGI; and

forwarding said packet via a tunnel identified by said routing, if forwarding a

        packet having said SGI via said tunnel is permitted.

11.   (Original) The method of claim 10, further comprising:

determining whether said packet can be sent via a tunnel based on a result of said

        classifying said packet.

12.-13. (Cancelled)

14.   (Original) The method of claim 11, wherein said determining comprises:

generating an index, wherein said index comprises said SGI; and

using said index to access an access control list (ACL), wherein said ACL

        includes information as to whether said packet can be sent via a tunnel.

15.   (Original) The method of claim 14, wherein said information comprises:

an SGI field; and

a tunnel identifier field.

16.   (Original) The method of claim 10, further comprising:

forwarding said packet from an ingress router to an egress router via a tunnel.

17.   (Original) The method of claim 16, further comprising:

receiving said packet at said egress router; and

determining whether said packet can be forwarded by said egress router based on

        said SGI.

18. (Original) The method of claim 17, wherein said determining whether said packet can be forwarded further comprises:

determining whether said packet can be forwarded by said egress router based on said SGI, a destination of said packet and an identifier of said tunnel.

19. (Original) The method of claim 17, wherein said determining whether said packet can be forwarded further comprises:

generating an index into an access control list (ACL), wherein

said ACL comprises information regarding whether said packet can be forwarded by said egress router, and

said index includes said identifier of said tunnel; and

accessing said ACL using said index.

20. (Previously Presented) A computer system comprising:

a processor;

computer readable storage medium coupled to said processor; and

computer code, encoded in said computer readable storage medium, configured to

cause said processor to:

assign a security group identifier (SGI) to a packet, wherein

said SGI is assigned based on a security group of a sender of said packet; generate a classification of said packet by virtue of being configured to classify said packet based on said SGI;

determine whether said packet can be sent via a tunnel based on said classification; and

forward said packet via said tunnel, if forwarding a packet having said SGI via said tunnel is permitted.

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21.   (Cancelled)

22.   (Previously Presented) The computer system of claim 20, wherein said computer code is further configured to cause said processor to:
      determine a routing of said packet, wherein said classification is also based on said routing.

23.   (Cancelled)

24.   (Previously Presented) The computer system of claim 20, wherein said computer code configured to cause said processor to determine is further configured to cause said processor to:
      generate an index, wherein said index comprises said SGI; and
      use said index to access an access control list (ACL), wherein said ACL includes information as to whether said packet can be sent via a tunnel.

25.   (Original) The computer system of claim 24, wherein said information comprises:
      an SGI field; and
      a tunnel identifier field.

26.   (Original) The computer system of claim 20, wherein said computer code is further configured to cause said processor to:
      forward said packet from an ingress router to an egress router via a tunnel.

27.   (Original) The computer system of claim 26, wherein said computer code is further configured to cause said processor to:
      receive said packet at said egress router; and
      determine whether said packet can be forwarded by said egress router based on said SGI.

28.   (Original) The computer system of claim 27, wherein said computer code configured to cause said processor to determine whether said packet can be forwarded by said egress router is further configured to cause said processor to:

determine whether said packet can be forwarded by said egress router based on

said SGI, a destination of said packet and an identifier of said tunnel.

29.   (Original) The computer system of claim 27, wherein said computer code configured to cause said processor to determine whether said packet can be forwarded by said egress router is further configured to cause said processor to:

generate an index into an access control list (ACL), wherein

said ACL comprises information regarding whether said packet can be

forwarded by said egress router, and

said index includes said identifier of said tunnel; and

access said ACL using said index.

30.   (Currently Amended) A computer program product, **wherein said computer program product comprises a computer-readable storage medium, and further** comprising:

a plurality of instructions, comprising

a first set of instructions, executable on a computer system, configured to

assign a security group identifier (SGI) to a packet, wherein

said first set of instructions are further configured to assign said

SGI based on a security group of a sender of said

packet[[;]] **,**

a second set of instructions, executable on said computer system,

configured to classify said packet based on said SGI[[;]] **,**

a third set of instructions, executable on said computer system, configured

to determine a routing of said packet, wherein said determining is

based on said SGI[[;]] **, and**

a fourth set of instructions, executable on said computer system,

configured to forward said packet via said tunnel, if forwarding a

packet having said SGI via said tunnel is permitted; and

said computer-readable storage [[media]] medium, wherein said ~~computer~~

~~program product is~~ instructions are encoded in said computer-readable

storage [[media]] medium.

31. (Previously Presented) The computer program product of claim 30,
wherein said second set of instructions is further configured to generate a classification of
said packet, and further comprising:

a fifth set of instructions, executable on said computer system, configured to

determine whether said packet can be sent via a tunnel based on said

classification.

32.-33. (Cancelled)

34. (Previously Presented) The computer program product of claim 31,
wherein said fifth set of instructions comprises:

a first subset of instructions, executable on said computer system, configured to

generate an index, wherein said index comprises said SGI; and

a second subset of instructions, executable on said computer system, configured

to use said index to access an access control list (ACL), wherein said ACL

includes information as to whether said packet can be sent via a tunnel.

35. (Original) The computer program product of claim 34, wherein said
information comprises:

an SGI field; and

a tunnel identifier field.

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36.   (Previously Presented) The computer program product of claim 30, further comprising:

a fifth set of instructions, executable on said computer system, configured to forward said packet from an ingress router to an egress router via a tunnel.

37.   (Previously Presented) The computer program product of claim 36, further comprising:

a sixth set of instructions, executable on said computer system, configured to receive said packet at said egress router; and

a seventh set of instructions, executable on said computer system, configured to determine whether said packet can be forwarded by said egress router based on said SGI.

38.   (Previously Presented) The computer program product of claim 37, wherein said seventh set of instructions comprises:

a first subset of instructions, executable on said computer system, configured to determine whether said packet can be forwarded by said egress router based on said SGI, a destination of said packet and an identifier of said tunnel.

39.   (Previously Presented) The computer program product of claim 37, wherein said seventh set of instructions comprises:

a first subset of instructions, executable on said computer system, configured to generate an index into an access control list (ACL), wherein said ACL comprises information regarding whether said packet can be forwarded by said egress router, and said index includes said identifier of said tunnel; and

a second subset of instructions, executable on said computer system, configured to access said ACL using said index.

40.   **(Currently Amended)** An apparatus comprising:

<u>a processor;</u>

a memory, coupled to the processor;

means for assigning a security group identifier (SGI) to a packet, wherein

said means for assigning said SGI is configured to assign said SGI based

on a security group of a sender of said packet;

means for classifying said packet based on said SGI, wherein

said means for classifying is coupled to said means for assigning, and

said means for classifying comprises [[a]] **the** memory;

means for determining a routing of said packet, wherein

said means for determining comprises [[a]] **the** processor, and

said means for determining is configured to use said SGI in determining

said routing; and

means for forwarding said packet via a tunnel identified by said routing, if

forwarding a packet having said SGI via said tunnel is permitted**, wherein

said means for forwarding is coupled to said means for determining**.

41.   (Original) The apparatus of claim 40, further comprising:

means for determining whether said packet can be sent via a tunnel on based a

result generated by said means for classifying said packet.

42.   (Cancelled)

43.   (Previously Presented) The apparatus of claim 41, further comprising:

means for forwarding said packet via said tunnel, wherein said means for

forwarding is configured to forward said packet via said tunnel if

forwarding a packet having said SGI via said tunnel is permitted.

44.   (Original) The apparatus of claim 41, wherein said determining

comprises:

means for generating an index, wherein said index comprises said SGI; and

means for using said index to access an access control list (ACL), wherein said

ACL includes information as to whether said packet can be sent via a

tunnel.

45.   (Original) The apparatus of claim 44, wherein said information comprises:

an SGI field; and

a tunnel identifier field.

46.   (Previously Presented) The apparatus of claim 40, wherein

said means for forwarding said packet is configured to forward said packet from

an ingress router to an egress router via said tunnel.

47.   (Original) The apparatus of claim 46, further comprising:

means for receiving said packet at said egress router; and

means for determining whether said packet can be forwarded by said egress router

based on said SGI.

48.   (Original) The apparatus of claim 47, wherein said means for determining whether said packet can be forwarded further comprises:

means for determining whether said packet can be forwarded by said egress router

based on said SGI, a destination of said packet and an identifier of said

tunnel.

49.   (Original) The apparatus of claim 47, wherein said means for determining whether said packet can be forwarded further comprises:

means for generating an index into an access control list (ACL), wherein

said ACL comprises information regarding whether said packet can be

forwarded by said egress router, and

said index includes said identifier of said tunnel; and

means for accessing said ACL using said index.